RESPONSES TO U.S. DEPARTMENT OF ENERGY (EM-453) COMMENTS CONCERNING THE DRAFT PHASE I RFI/RI WORK PLAN (Dated 06/22/92)

ROCKY FLATS PLANT
700 AREA
OPERABLE UNIT NO. 8

U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant
Golden, Colorado

ENVIRONMENTAL RESTORATION PROGRAM
December 1, 1992

INTRODUCTION

The document review comments displayed on the following pages were received from the U. S. Department of Energy (EM-453); undated, received September 25, 1992. These comments pertain to its review of the document entitled Draft Phase I RFI/RI Work Plan, Rocky Flats Plant, 700 Area, Operable Unit 8; supplements dated June 22, 1992. Responses are provided and follow each comment. The response indicates the position of DOE and the manner in which the comment was addressed and included in the Final Phase I RFI/RI Work Plan dated December 1, 1992.

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CRITICAL COMMENTS:

1. The risk assessment plan does not include a discussion of how risk assessment will be conducted across an aggregate area which includes a number of sites. A plan for statistically analyzing data and organizing risk assessment activities both within and across the sites needs to be included. The field sampling plan is focused on site specific investigations. The data that are being collected on an operable unit basis, such as stream and sediment data should be integrated into a facility-wide scenario.

Response: *This comment is not specific in its intent. This plan is prepared in accordance with the contract SOW and CDH letter (4/21/92) that stipulates the IHSSs to be addressed in the OU8 RFI/RI Work Plan. As Section 6.0 indicates, IHSS investigations will continue beyond the IHSS arbitrary boundary until contamination is defined, another IHSS boundary in a different OU is encountered, or the limit of the OU8 is reached.*

Response: *Contract documents specify the OU8 Work Plan and investigation report is to be confined to OU8 and within the RFP PA. Contract scope does not instruct development of the plan to address plans for facility-wide integration of the data to be obtained.*

2. The methodology for selecting contaminants of concern is inadequate. According to the flow chart presented in Figure 8-2, a contaminant could be excluded from the risk assessment if the contaminant is detected in only one sample (data set of 20) and the contaminant is not detected in an area where concentrations exceed 10 times the mean concentration for that contaminant. However, these criteria are not meaningful, especially for a data set of 20 because concentration for contaminants detected only once can never exceed 10 times the mean concentration. Thus, the contaminant would always be excluded, even if it exceed background or health-based criteria. In addition, concentrations that do not exceed 1/10 health/environmental criteria will be excluded. These criteria are defined in the text as including such criteria as reference dose-based criteria or drinking water standards. If risk/hazard-equivalent concentrations are to be used, the risk level/hazard quotient on which they are based need to be presented, as well as the pathways they include. The use of 1/10 MCLs for this purpose is inappropriate

because it could result in the exclusion of contaminants based only on their presence in groundwater, even if they are carcinogens and occur at concentrations above background in soils. The methodology does not indicate that contaminants will be selected separately for each medium.

Response: *Figure 8-2 is unchanged. Page 8-2, paragraph 2, bullets 1 and 2, state toxicity and levels of contaminants will be identified and characterized for each media. Paragraph 3, page 8-2, states four Technical Memoranda will be prepared througout implementaion of the HHR. These memos insure adequate agency (and public) involvement in the process to review and approve selection of contmainants and establishing appropiate levels of concern.*

3. The work plan attempts to control future work by using technical memoranda. This approach was apparently developed in order to promote a more efficient site investigation, i.e., sampling, will not be locked in place prior to site survey information. In general, this is a good approach, however what is lacking is clear direction regarding how the stages will interact. Criteria should be provided as to how decisions for each step will be made. For example, how will the soil-gas results be used to guide the borings, or determine if borings are needed at all.

Response: *The text for this section has been rewritten; this concern is addressed in the new text. The text of the TMs will provide the screening results, evaluation of results, rational for further sampling, and suggested frequency of sampling.*

GENERAL COMMENTS:

1. The discussion on bedrock geology in Section 1 is confusing, presents information that should be factual in contradictory fashion, and generally does not provide information that is utilized in the development of the Work Plan. Recommend that this section be deleted, or reduced as it adds little to the text.

Response: *Organization and text of Section 1.6.7 (all) has been revised to address specific aspects of the RFP geology (see new Sections 1.6.8 - 1.6.12).*

2. Recommend that Section 2.3 and 2.4 be combined. These sections should also be reviewed for consistency. Commonly, a site description will refer to a leak, then a spill without clarifying whether these are the same or different events. Drums and tanks are also used interchangeably though they mean different things.

Response: *Redundant portions of the IHSS description occurring in subsection 2.4 are removed and occur only in subsection 2.3. The scope of work for the work plan and EPA guidance instructs these two sections to be independent.*

3. The discussion on the Rocky Flats Environmental Database (RFED) in Section 2.4 presents concerns regarding the reliability of the data presented in this report. While recognizing the problem, a plan should be presented to verify or validate the information in RFEDs. This forum the OU-8 work plan is probably not the place for such a discussion, but until that problem is solved, all the historical data is highly questionable.

Response: *Validation of the RFEDs database is outside the scope of this work plan. Validation of data used in evaluation of information obtained during implementation of this work plan is discussed in Section 5.1.1.2 and will be brought in the recommendations presented in the appropriate Technical Memos (Section 6.0).*

SPECIFIC COMMENTS:

Section 1.0 - INTRODUCTION

1. Section 1.4.1, p. 1-5, first paragraph, third sentence: "OU" in this context is misleading, use division, or something similar.

Response: *"OU" is changed to operating unit.*

2. Section 1.4.2, p. 1-5, second paragraph, fifth sentence: Please delete "radioactive" in front of "mixed", mixed wastes are by definition radioactive.

Response: *"Radioactive" preceding "mixed wastes" is deleted.*

3. Section 1.6.7.2, p. 1-22, first paragraph, sixth sentence: A "reliable or recognizable lithologic marker" cannot be determined by palynology or biographic studies. By definition a lithologic marker is something that can be observed and correlated without relying on microscopic or exhaustive paleontological work.

Response: *Comment acknowledged, wording has been deleted.*

4. Section 1.6.7.2, p. 1-23, third and fourth paragraphs: The depositional history of the No. 1 Sandstone described here does not relate to current knowledge of how depositional environments are preserved in the stratigraphic record. It is extremely unlikely that a meandering river depositional system would be reflected in the rock record by simple, sinuous, continuous, channels. Also isopach maps are not based on geologic models, models are based on isopach maps. The maps and cross-sections provided (Figures 1-19 to 1-26) do not consistently present the presence and thickness of the sands. These data are <u>facts</u> that should not be

modified to fit models.

Response: *The phrase "...Geologic models set forth in..." is deleted. Cross sections have been revised.*

5. Section 1.6.7.2, p. 1-24, fourth paragraph: Please clarify the statement regarding "more than one fining upward sequence". The following discussion implies that each location had a fining upward sequence.

Response: *The phrase "...Geologic models set forth in..." is deleted. Cross sections have been revised. Clarification as requested: A "fining upward sequence" is a genetic interpretation of the fluvial processes recognized in the Arapahoe Formation. The fluvial transport energy for various size ranges for the progression of clastic sediments: clay, silt, sand, and gravel is inferred as ranging from low to high. Thus, in a drill core penetrating first clay, silt, sand, and the gravel, the temporal progression - from younger to older - is fining upward. This type of petrologic evidence affords one the sedimentological interpretation that the transport energy was decreasing with time at the site. A single sentence summarizing this genetic interpretation is added to the text.*

Response: *The drill hole intersection of multiple fining upward sequences means that the transport energies were cyclical and repetitive in the vertical dimension. Where a fining upward sequence at two different locations has its continuity correlative continuity interrupted by for example homogenous sediments (clays) a conclusion may be inferred that the heterogeneous sediments were transported in a curving channel.*

Response: *The discussion clearly states that the "...sequence has been noted at several wells" and interpreted in wells where finer sandstone is penetrated. Additionally, Appendix C-9 (formerly Table 1-6) specifically lists wells containing the sequence.*

6. Section 1.6.7.2, p. 1-26, first and second paragraphs: The discussions on possible groundwater flow directions are not sufficiently developed or supported. The general statement that it is more likely that groundwater be present in the sandstone rather than claystone is probably correct, providing that the sandstone and claystone differ in overall porosity and permeability. The statements regarding flow directions following the channels is not supported by any evidence. If this sandstone is confined, then hydraulic head differences will control the flow direction.

Response: *The text subsection has been revised and occurs now as 1.6.10 (i.e., page 1-30, paragraphs 2 and 3). Wording has been changed to indicate either interpretation is not finalized (i.e., "...if accurate.....confined by flanking claystones...") and flow*

direction trends in the direction of the "channels". This "trend" is supported, albeit generally, by Figures 1-19 and 1-20.

7. Figures 1-19 and 1-20: The data between these figures do not match. For instance, Figure 1-20 shows a ten foot isopach in the southern channel, while Figure 1-19 shows no contours in that area. Also the area in the north shows the same boreholes in different contour intervals for each map. Please provide a consistent isopach map for the area.

Response: *Isopach contour intervals were taken from the Geologic Characterization Report maps, Figures 14, 15 from EG&G 1991h, as the base for current Figures 1-19 and 1-20. Contours are accurate as interpreted.*

Response: *Recent geologic age is given for the Valley Fill Alluvium.*

8. Figure 1-21 to 1-25: The thickness of the units presented at each borehole should not vary between interpretations. Please provide one set of stratigraphic thickness per borehole used on the core description.

Response: *Thicknesses at cross section intersections were made consistent as needed on the figures. The reader should note that vertical and horizontal scales are not similar; three different vertical exaggerations were required to conform to the document map size.*

9. Table 1-5 and 1-7: This information could be presented in an appendix.

Response: *Tables 1-5, 1-6, and 1-7 are now contained in Appendix C.*

Section 2.0 - OPERABLE UNIT 8 SITE CHARACTERIZATION

10. Section 2.3, p. 2-3: The information in this section could be combined with the information presented in 2.4. This section brings up many topics at each site, which are not discussed until 2.4. Also, this section includes a discussion of historical information which is also covered in 2.4. The only way for a reader to fully understand each site to take apart the report and read 2.3 and 2.4 side-by-side.

Response: *Sections could not be combined but some detail was brought forward from Section 2.4 into 2.3 to clarify each section and reduce redundancy.*

11. Section 2.3.3, p. 2-6, fourth paragraph: Please provide information on how IHSS 123.2 is being investigated.

Response: *IHSS 123.2 is not included in OU8.*

12. Section 2.3.3, p. 2-6, fifth paragraph: The actions taken, dikes and dams, appear to indicate that the problem was larger than a "leak". Please clarify.

Response: *"Leak" changed to "waste water...flowing out...".*

13. Section 2.3.7, p. 2-10, second and third paragraphs: Please clarify the dates of tank construction and the references provided. It would seem that it would be possible to refine an estimated construction date than a range of nine years.

Response: *Not able to estimate construction date any closer than 9 years.*

14. Sections 2.3.9, p. 2-13, second and third paragraphs: The values presented of the depth to the bottom of these tanks do not add-up. Please clarify the various depths presented here.

Response: *Dimensions checked in Doty and HRR. Dimensions will be checked if possible prior to implementing field work.*

15. Tables 2-7 to 2-36: These tables could be provided in an appendix.

Response: *This information relates directly to the discussion concerning nature and extent of contamination, as such, its proximity and inclusion in this section as tables is more accessible to the reader to assess in the evaluation of the IHSSs.*

Section 3.0 - ROCKY FLATS PLANT CHEMICAL SPECIFIC BENCHMARKS

16. Section 3.0, p. 3-1: The term Chemical Specific Benchmarks (CSBs) is being used incorrectly. CSBs are developed based on toxicological information when there are not standards. In this case, it appears ARARs are being called CSBs. While in a sense ARARs are CSBs in that they are partially based on toxicological data, they do not fit the term. Please clarify the intent of the standards/benchmarks provided.

Response: *The text of this section has been substantially revised to address CDH (agency) comments stating CSB purpose is to set RFI/RI detection limits and clarify their relationship with ARARs to be developed as part of the OU8 Corrective Measures Study and results of an environmental and human-health Risk Assessment.*

Section 4.0 - RCRA FACILITY INVESTIGATION/REMEDIAL INVESTIGATION TASKS

General Response: No comments were provided by DOE EM-453 concerning this section.

Section 5.0 - DATA QUALITY OBJECTIVES AND DATA NEEDS

17. Section 5.1.1.2, p. 5-3, third paragraph: The first and second sentence conflict. Please provide the requirements criteria for installing groundwater wells.

Response: *Section 5.0 has been entirely rewritten consistent with DQOs developed and agency-approved for OU10, OU12, and OU13. The subsection and paragraph of concern has been deleted. Requirements for installation of wells will be developed in Technical Memorandum 4 (see sections 6.4.4 and 6.4.5).*

18. Section 5.1.1.2, p. 5-4, first paragraph: The interconnection of the groundwater system appears to be a larger problem than what is scoped in this plan. Recommend investigations in this area be coordinated through the site-wide characterization study.

Response: *The paragraph of concern has been deleted entirely in the newly revised section of text to avoid any confusion. Deferral of groundwater investigations or evaluation of well data through the site-wide characterization study would short circuit the Phase I RFI/RI Report (Section 6.7) and its ability to assess contaminant models, evaluate impacts and risks, and develop remedial alternatives (or other needed investigative studies).*

Section 6.0 - FIELD SAMPLING PLAN

19. Section 6.4.1, p. 6-17, first paragraph: Please clarify the "informal" meetings and field sampling plans at this stage of the investigation. Any meeting or plan relating to investigation results or scope-of-work will be considered "formal" the sense that they will document the work to date or to be completed.

Response: *The FSP has been changed such that this is no longer a proposed action*

20. Section 6.4.1, p. 6-22, third paragraph: The analytical suite limitations of the BAT sampler should be discussed in Section 5.0, with an appropriate discussion of how its limitations will effect the decision making at the sites.

Response: *Within section 6.0 a BAT sampler is not proposed where radionuclides are the only contaminant of concern. As discussed on page 6-20 the BAT sampler can pull a large enough sample to analyze for all we are concerned with except radionuclides.*

21. Table 6-1: Please provide minimum and maximum number of borings, if possible, for each IHSS.

Response: *Table 6.1 (or an equivalent) is no longer part of the document. And at this time it is not possible to indicate the number of borings necessary until some initial information of each IHSS is known.*

Section 7.0 - PHASE I RFI/RI TASK SCHEDULE

22. Figure 7-1: Please add preparation of the CMS/FS.

Response: *The CMS/FS activity/task has been added to the revised schedule.*

Section 8.0 - HUMAN HEALTH RISK ASSESSMENT PLAN

23. Section 8.2.2, p. 8-8, second paragraph: The discussion on tentatively identified compounds (TICs) does not appear adequate. The criteria provided are vague (what is the difference between "few" and "numerous" occurrences) and potentially incorrect. This area should either be better developed or deleted from the work plan completely.

Response: *By deletion of the terms below, we believe the usage and identification of TICs is now adequately clarified. This paragraph is now exactly the same as it appears in the Human Health Risk Assessment (RA) for the approved work plans for OU13 and OU10.*

Response: *Because the two terms "few" and "numerous" were used in a relative sense without qualification, both sentences containing the terms have been deleted.*

24. Section 8.2.4, p. 8-9, first paragraph: Recommend deleting this paragraph. This paragraph appears to indicate that there is not methodology for chosen contaminants-of-concern (COCs), however, the rest of the section describes such a methodology.

Response: *This paragraph serves to provide an introduction and brief outline describing how COCs will be identified utilizing the technical memoranda process. Where identified, the criteria for listing and selecting COCs will be submitted for approval by the CDH and EPA.*

25. Section 8.2.4, p. 8-10, first bullet: Please define infrequently.

Response: *Use of the word "infrequently" has been deleted in the bullet statement.*

26. Section 8.2.4, p. 8-11, first paragraph: The flowchart (Figure 8-3) does not include mobility, persistence, or decay products as discussed here, please add to figure.

Response: *A block for review of carcinogens for these factors has been added to Figure 8-3.*

Sections 9.0, 10.0, and 11.0

General Response: No comments were provided by DOE EM-453 concerning these sections.

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